MTH 233.001 Final Exam Information

Our cumulative 100-point final exam will consist of ten 10-point problems. Three of those problems will be take-home problems, assigned on December 5 and due on December 11. The remaining seven exam problems will be in-class problems on December 11 during our last class meeting. In order to receive full credit for the problems, you must show all work or supply explanations that support your answer. The take-home problems must be worked individually. If you need to reschedule your final exam or take it in the testing center, please make arrangements as soon as possible. Any rescheduled exams must be taken in the testing center (or in class during another of your instructor's final exams), and they must be completed on or before Thursday, December 11.

The final exam will cover the objectives listed below. Focus your studying on these skills.

Final exams skills list

1. Find parametric or symmetric equations for a line in space. (Section 2.5)
2. Find the arc-length parameterization for a smooth curve. (Section 3.3)
3. Solve a projectile motion problem in space. (Section 3.4)
4. Compute the limit of a multi-variable function. (Section 4.2)
5. Use the two-path test to show that a limit does not exist. (Section 4.2)
6. Use tangent planes (i.e., linearizations) to approximate function values. (Section 4.4)
7. Compute the total differential of a function and use it to approximate change. (Section 4.4)
8. Use gradient vectors as normal vectors. (Section 4.6)
9. Find an equation of the plane tangent to a given surface at a point. (Section 4.4)
10. Compute directional derivatives and interpret them as slopes. (Section 4.6)
11. Find the critical points of a function of two variables. Use the second partials test to classify critical points. (Section 4.7)
12. Use Lagrange multipliers to solve a constrained optimization problem. (Section 4.8)
13. Write a double integral as an iterated integral and evaluate. (Section 5.2)
14. Change the order of integration in a double integral. (Section 5.2)
15. Use double integrals in polar coordinates to compute areas and volumes. (Section 5.3)
16. Write a triple integral as an iterated integral and evaluate. (Section 5.5)
17. Evaluate a triple integral by converting to cylindrical coordinates. (Section 5.5)
18. Use a triple integral to find the mass of a solid in space. (Section 5.6)
19. Evaluate line integrals. (Section 6.2)
20. Apply Green's theorem. (Section 6.4)